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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,948	08/07/2001	Stefan Wigger	33713W003	9507

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EXAMINER	
WILKINS III, HARRY D	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/922,948	WIGGER ET AL.
	Examiner	Art Unit
	Harry D Wilkins, III	1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2004 and 01 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1,3,5,8,9,11-16 and 19-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,8,9,11-16 and 19-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. New grounds of rejection are presented below based on Applicant's amendment of the Markush group by deleting "talc" from the group. Thus, Applicant's amendment necessitated the new grounds of rejection.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3, 5, 8, 9, 11-16 and 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirooka et al (US 5,330,813) in view of Marantz et al (US 3,989,622) and Milaniak et al (US 5,366,765).

Hirooka et al teach the invention substantially as claimed. Hirooka et al teach (see col 2, line 34) a patch for preventing carburization that contains (see col 3, lines 32-34) particulate materials such as borax, boron oxide, borosilicic acid, phenylboric acid and water glass and (see col 3, lines 53-54) adjuvant materials such as talc and magnesia. The patch allows for carburization for a portion of the metal surface to be prevented (see col 2, lines 43-44). Hirooka et al contain several examples where the ratio of the particulate material to the adjuvant was 9:1 (see examples 2 and 5), 4.5:1 (example 7) and 13:1 (example 8).

It would have been within the expected skill of a routineer in the art to have selected a substance which forms boron glass (e.g. boron oxide and borax) as the particulate material and to have selected a magnesium-silicon compound as the

adjuvant in order to obtain the best anti-carburizing coating with the best ability to stay in place (the function of the adjuvant).

Hirooka et al teach using talc (see col. 3, lines 53-54) (composition $Mg_3Si_4O_{10}\cdot(OH)_2$, see "The Mineral Talc") as the magnesium-silicon compound. Thus, Hirooka et al fail to meet the claimed composition of magnesium orthosilicate, metasilicate or trisilicate.

Marantz et al teach (see col. 7, lines 51-64) that talc is a naturally occurring magnesium silicate and magnesium silicates, such as magnesium trisilicate, are merely refined versions of the natural ore. Thus, one of ordinary skill in the art would have expected the refined versions of talc to have the same effects as the unrefined ore.

Thus, it would have been obvious to one of ordinary skill in the art to have substituted refined magnesium silicates, such as magnesium trisilicate, for the talc of Hirooka et al.

However, Hirooka et al do not teach that the composition was applied as a paste, semi-liquid or liquid.

Milaniak et al teach several methods of applying a composition of a powder mixed with a binder onto a metal surface. In particular, the invention of Milaniak et al is directed to (see abstract) a method of applying a coating by application of a slurry (i.e.-a semi-liquid). Milaniak et al is considered to be analogous art because it is related to the problems addressed by the present invention, particularly the application of a powder material onto a metal surface.

The "patch" of Hirooka et al and the slurry of Milaniak et al are considered to be functional equivalents. The reason that they are considered equivalent is that they both perform the same function of providing a method of coating a metal surface with a powder easily. See MPEP 2144.06. No motivation is needed for the substitution of functional equivalents.

Regarding claim 3, Hirooka et al teach an example that uses a particulate/adjuvant ratio of 9:1 (examples 2 and 5) and an example that uses 13:1 (example 8), which ratios are within the presently claimed ratio.

Regarding claim 5, Hirooka et al do teach examples (2 and 5) that have a particulate/adjuvant ratio of 9:1. This ratio is close enough to the presently claimed ratio that one of ordinary skill in the art would have expected it to have the same properties as claimed. See MPEP 2144.05.

Regarding claim 8, as above, Marantz et al suggest using refined magnesium trisilicate in place of unrefined talc.

Regarding claim 9, Hirooka et al teach (see col 3, lines 32-34) that the particulate included materials such as boric oxide and borax. It would have been within the expected skill of a routineer in the art to have opted to use either of these particulates in order to obtain the best anti-carburizing coating.

Regarding claims 11, 12 and 13, Hirooka et al teach (see col 4, lines 23-28) that the preferred composition contains 40-70 wt% particulate (anti-carburizing compound), such as boron oxide (col 3, liens 32-34) and 60-30 wt% binder resin, and a ratio of anti-carburizing compound to adjuvant of about 9:1. The presently claimed composition is

within the broad range disclosed by Hirooka et al. However, it would have been within the expected skill of a routineer in the art to have optimized the composition of the three components within the claimed range in order to best create a coating that prevents carburizing and remains in place during heating (see col 2, lines 44-51).

Regarding claim 19, Hirooka et al teach (see col. 3, lines 53-54) talc as one of the possible adjuvants. It would have been within the expected skill of a routineer in the art to have selected talc from the list of adjuvants in order to optimize the ability of the composition to stay in place during carburizing (i.e.-the function of the adjuvant). It also would have been obvious to one of ordinary skill in the art to have used, as above, the refined magnesium trisilicate in place of the unrefined talc.

Regarding new claim 21, Hirooka et al teach that the adjuvant has the function of keeping the boron glass forming substance in place (see col. 3, lines 43-47, "the ... particulate material is restrained from flowing upon melting under heat, whereby a more uniform gas barrier film is obtainable."). One of ordinary skill in the art would have expected that this function would also lead to keeping the boron glass in place by preventing vaporization.

Regarding claim 14, Hirooka et al teach the invention as claimed. Hirooka et al teach carburizing a surface (see col 7, lines 10-12) by first preventing carburization on a portion of the surface by applying a patch of a material containing (col 3, lines 32-34) a particulate material (e.g.-borax, boron oxide, borosilicic acid, phenylboric acid and water glass) and (col 3, lines 53-54) adjuvant materials (e.g.-talc). Hirooka et al contain

several examples where the ratio of the particulate material to the adjuvant is 9:1 (see examples 2 and 5), 4.5:1 (example 7) and 13:1 (example 8).

It would have been within the expected skill of a routineer in the art to have selected a substance which forms boron glass (e.g. boron oxide and borax) as the particulate material and to have selected a magnesium-silicon compound (e.g.-talc) as the adjuvant in order to obtain the best anti-carburizing coating with the best ability to stay in place (the function of the adjuvant).

As above, Hirooka et al teach using talc (see col. 3, lines 53-54) (composition $Mg_3Si_4O_{10}\cdot(OH)_2$, see "The Mineral Talc") as the magnesium-silicon compound. Thus, Hirooka et al fail to meet the claimed composition of magnesium orthosilicate, metasilicate or trisilicate.

Marantz et al teach (see col. 7, lines 51-64) that talc is a naturally occurring magnesium silicate and magnesium silicates, such as magnesium trisilicate, are merely refined versions of the natural ore. Thus, one of ordinary skill in the art would have expected the refined versions of talc to have the same effects as the unrefined ore.

Thus, it would have been obvious to one of ordinary skill in the art to have substituted refined magnesium silicates, such as magnesium trisilicate, for the talc of Hirooka et al.

The method of Hirooka et al do not include the composition being applied as a paste, semi-liquid or liquid.

Milaniak et al teach several methods of applying a composition of a powder mixed with a binder onto a metal surface. In particular, the invention of Milaniak et al is

directed to (see abstract) a method of applying a coating by application of a slurry (i.e.-a semi-liquid). Milaniak et al is considered to be analogous art because it is related to the problems addressed by the present invention, particularly the application of a powder material onto a metal surface.

The "patch" of Hirooka et al and the slurry of Milaniak et al are considered to be functional equivalents. The reason that they are considered equivalent is that they both perform the same function of providing a method of coating a metal surface with a powder easily. See MPEP 2144.06. No motivation is needed for the substitution of functional equivalents.

Regarding claim 15, Hirooka et al teach (see col 7, line 12) that the carburizing occurs at 950°C.

Regarding claim 16, Hirooka et al teach (see col 9, line 42) that the patch also comprises a resin (i.e.-organic binder).

Regarding claim 20, Hirooka et al teach carburizing a surface (see col 7, lines 10-12) by first preventing carburization on a portion of the surface by applying a patch of a material containing (col 3, lines 32-34) a particulate material (e.g.-borax, boron oxide, borosilicic acid, phenylboric acid and water glass) and (col 3, lines 53-54) adjuvant materials (e.g.-talc). Hirooka et al contain several examples where the ratio of the particulate material to the adjuvant is 9:1 (see examples 2 and 5), 4.5:1 (example 7) and 13:1 (example 8). It would have been within the expected skill of a routineer in the art to have selected a substance which forms boron glass (e.g. boron oxide and borax) as the particulate material and to have selected a magnesium-silicon compound (e.g.-talc) as

the adjuvant in order to obtain the best anti-carburizing coating with the best ability to stay in place (the function of the adjuvant).

Regarding new claim 22, Hirooka et al teach that the adjuvant has the function of keeping the boron glass forming substance in place (see col. 3, lines 43-47, "the ... particulate material is restrained from flowing upon melting under heat, whereby a more uniform gas barrier film is obtainable."). One of ordinary skill in the art would have expected that this function would also lead to keeping the boron glass in place by preventing vaporization.

Regarding claims 23 and 24, Hirooka et al teach (see Example 1, col. 6, lines 20-22) that the carburizing occurred in a vacuum carburizing furnace. A vacuum carburizing furnace is also a "reduced pressure carburizing plant" as claimed.

Regarding claim 25, as above, Marantz et al suggest using refined magnesium trisilicate in place of unrefined talc.

Response to Arguments

4. Applicant's arguments filed 18 March 2004 have been fully considered but they are not persuasive. Applicant argued that:

a. Specific properties such as a flow preventative effect or an effect on the temperature of evaporation of the applied composition cannot be deduced from Hirooka et al.

In response, the flow preventative effect of the adjuvant is disclosed by Hirooka et al (see col. 3, lines 43-47). With respect to the effect on the temperature of evaporation of the applied composition, a newly discovered property does not

necessarily mean the product is unobvious, since this property may be inherent in the prior art. *In re Best* 195 USPQ 430; *In re Swinehart* 169 USPQ 226. In this instance, the adjuvant, particularly talc (raw magnesium silicate), would inherently possess this property. Since there is the selection of magnesium silicates as the adjuvant from a group of possibilities, if Applicant can show that only with the magnesium silicates is the reduced vaporization achieved, it would show unexpected results for the present invention and overcome the rejection based on Hirooka et al.

b. Hirooka et al does not address the problem of increased evaporation rates of boron oxide or borate.

In response, it has been held, that where the prior art suggests doing what Applicants have done, though for different reasons, an obviousness rejection still stands.

"We think it is sufficient that the prior art clearly suggests doing what appellants have done, although an underlying explanation of exactly why this should be done, other than to obtain the expected superior beneficial results, is not taught or suggested in the cited references." *In re Gershon, Goldberg, and Neiditch* 152 USPQ 602

c. No equivalence or interchangeability has been established between the patch of Hirooka et al and the slurry (i.e.-semi-liquid) of Milaniak.

In response, as discussed in the rejection grounds, the slurry of Milaniak is an equivalent method of applying a powder composition to a metal surface. The two methods are equivalent to each other in that both apply a powder substance to a metal surface to bond with the metal surface by evaporating the binder phase. In addition, Milaniak teaches (see col. 1, lines 16-44) that the slurry application method was merely a different way of applying a particulate material that had previously been applied using

a "pack process", i.e.-applying as a solid. Thus, the slurry method and the patch process are considered to be functional equivalents of applying a particulate material to a metal surface.

d. There is no motivation to use the slurry of Milaniak instead of the patch of Hirooka et al.

In response, substitution of functional equivalents does not require an explicit motivation to combine. See MPEP 2144.06.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-Th 10:00am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry D Wilkins, III
Examiner
Art Unit 1742

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